



Deploying Wired for Management Solutions

Deploying Wired for Management (WfM) Solutions

As workers rely more and more on their PCs to perform their jobs, computers become a crucial strategic business asset that drives employee productivity. The result: The computing infrastructure now plays an important role in determining the success of a business. Yet the proliferation of desktop and notebook computers, combined with the growing complexity of the overall computing environment, makes it more difficult than ever for IT departments to manage these resources. At the same time, IT departments face enormous budgetary pressures. Clearly, companies must find ways to simplify PC management in order to improve productivity, lower costs, and avoid unacceptable downtime.

"Being able to deploy new applications rapidly is a key issue for us," says Bryan Brown, manager of network services at Helix Health, a not-for-profit system serving the greater Baltimore area and the largest health care provider in Maryland. "Our biggest headache has been not knowing what we had in the field at all times. When we were ready to roll out a new application, our technicians had to do a physical walk-through to see what was out there. After the inventory, we would do our planning, order the upgrades, and go through and upgrade the hardware. Then, finally, we'd be ready to deploy the software."

Obviously, this manual approach to system management used to cost Helix Health a lot of time and money. The Wired for Management (WfM) Baseline Specification provides a common set of standards-based technologies for managing PCs over networks to help IT speed the deployment of systems and applications. But it's not always obvious how to begin deploying the management applications that use these technologies across a network environment that contains PCs of varying ages.

This article will give you some useful approaches for deploying Wired for Management (WfM)—enhanced desktop management.

Get Familiar with WfM Technologies

If you are unfamiliar with WfM, it's a good idea to review background material and information about products that support WfM. Among the things you can do to get started:

- Read WfM case studies and other articles on the Intel *Technology@Work* site, which can be accessed at: <http://www.intel.com/tech>
- Review manageability information from top OEMs and enterprise application vendors. The *Technology@Work* site provides useful lists of vendors who provide WfM-compatible applications and WfM-enabled systems. You can find these within "WfM Helpful Resources" of *Technology@Work*.
- Perform a hands-on trial on a small scale (a server and a few clients) using a free or downloadable management application such as from an OEM or evaluation version of an independent software vendor's product. Top PC vendors often ship a client management application with their WfM-enabled systems, so that IT departments can begin reading DMI information or remotely waking up systems on a trial basis.

As you learn about the types of technologies and benefits offered by WfM-enabled solutions, you can begin relating these to solving problems or making improvements in your own environment.

Planning and Preparation

To get things started, you want to review what your environment contains, from client systems to management tools and practices.



Deploying Wired for Management Solutions

New system purchase practices should also be reviewed to ensure that all new PCs are WfM-enabled. Specifying WfM-enabled systems ensures that new PCs come equipped with the following:

- A WfM-enabled network interface card (NIC)
- Boot ROM
- DMI software on the image supported on the hard drive

For more information about specifying WfM-enabled systems, read the *Technology@Work* article, "Wired for Management: Buying to Spec." It can be found on the *Technology@Work* site.

Sleuthing Systems

Start by taking stock of your existing systems. The majority of corporate PCs shipping today from top OEMs include support for WfM; however, PCs purchased before 1998 may lack this capability. To assess the state of your systems, consider the following steps:

- Identify the number of systems purchased since 1998 and their locations.
- Determine which of these new systems were specifically purchased as "WfM-enabled," meaning they have a network interface card (NIC) type tested for WfM operation by the OEM. Also, determine if they are equipped with a boot ROM, and whether the disk drives have DMI software installed and operational. Through this step, you'll know what actions are needed to have your newer systems at their peak level of manageability.

If systems were not specified as WfM-enabled, they may or may not have the appropriate configuration. If the PCs were not shipped as WfM-enabled, but were confirmed by the OEM to support a WfM-enabled configuration, you should be able to upgrade them.

Assessing Applications

Review your current management applications. In some cases, you may be running WfM-enabled hardware but have yet to deploy desktop management functions that take advantage of the WfM technologies. By the same token, you may actually have WfM-compatible tools and systems in place, but have yet to make use of the features they provide.

Checking Practices and Policies

Next, you need to take stock of system management practices now in use in your environment.

For example, adopting the new capabilities found in WfM-enabled applications and systems may prompt you to reevaluate existing practices and policies. Desktop management functions that previously did not promise to deliver significant value may offer compelling benefits in a WfM-enabled environment.

Or you may find that your existing system management practices gain substantial benefit from tools and systems that take advantage of WfM manageability.

Certainly, several core desktop management functions benefit from the deployment of WfM technologies. Among the functions that WfM technology enhances:

- Asset management/system inventory (richer set of information from DMI instrumentation)
- System monitoring/support (richer set of information from DMI instrumentation)
- Software distribution (more reliable off-hours distribution due to remote wake-up)
- New systems setup (standards-based universal network boot for loading system images)
- System recovery(standards-based universal network boot for loading system images)



Deploying Wired for Management Solutions

Planning Resources

Of course, nothing in life is free. In order to deploy WfM technology and tools, you must identify IT staff for training on the tools. You should also consider creating and equipping a lab to test WfM-enabled systems, applications and practices in a controlled environment.

Assessing the Environment

IT managers typically face one of three common scenarios when looking to adopt more manageable systems: This section will describe these common situations and provide insights into implementing WfM-enabled management practices for each.

The three common deployment scenarios are:

- Scenario 1: Mix of WfM-enabled PCs and legacy systems; IT is already doing desktop management
- Scenario 2: Mix of WfM-enabled PCs and legacy systems; IT is not yet doing desktop management
- Scenario 3: New site or organization; all new systems and decisions about what desktop management to implement

Scenario 1: The Managed, Mixed Environment

In this first scenario, IT departments must first ascertain whether their existing management applications use WfM technologies to enhance certain functions. Among the things to consider:

- Check resources of independent software vendors (including Web sites and system engineers) for latest methods of support for WfM; inquire about their plans for WfM support.
- Check Intel's *Technology@Work* site, under WfM initiative, for a list of software vendors that support the specification.
- If WfM support is not indicated in your management application, look for support of the underlying WfM technologies; including LAN-based remote wake-up; DMI 2.0 system information; and PXE pre-boot services.

Once it is known how the management application uses WfM technologies, you can factor that knowledge into your plans to implement desktop management functions. You may also find that you need to update current management applications to a new version, if appropriate.

In addition, there may be reason to consider "point" solutions, such as for automating system setup. This approach can let IT departments selectively gain from greater manageability of new systems even if the existing management application does not encompass a desired desktop management function.

For more information on implementing WfM, see the sidebars, "Tips for Managing a Mixed Environment" and "Roll-Out Strategies for WfM-Enhanced Management."

Scenario 2: The Unmanaged, Mixed Environment

If your network has a mix of WfM-enabled and legacy systems and you have yet to implement management for any of your desktop systems, you have a few factors to consider:

First, prioritize deployment of various desktop management functions by their importance to the organization's business objectives. For example, Desjardins General Insurance (DGI), a leading Canadian insurance company, adopted WfM remote wake-up technology to efficiently update software used by its hundreds of remote field agents. The new capabilities help DGI quickly react to competition.

"If one of our competitors introduces a new product on Thursday, we might send out a software upgrade Thursday night, giving our agents competitive information and sales tips to counter it," says Andre Langevin, technology architect at DGI.



Deploying Wired for Management Solutions

Next, look for opportunities to adopt a managed environment, such as when an entire department is to be upgraded to new systems. In such a situation, you can take advantage of the better manageability of new systems, while testing practices and management tools on a small scale, before moving to the larger environment. You may even be able to use the timing of such a planned departmental upgrade to drive the testing and initial deployment of system setup automation. In this way, you can reap the benefits of automation by easing the normally difficult task of rolling out a group of new systems. (See also the *Technology@Work* article, "What You Can Gain by Automating Your New System Setup," which can be found under the Wired for Management Helpful Resources in the Intel® Initiatives/Products section.)

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Scenario 3: Starting Fresh

In many ways, the best (and rarest) environment is none at all—you have an opportunity to specify and procure a network and systems for a new site or organization. Because you are purchasing all your systems as new, you are able to ensure that all hardware is WfM-enabled. You are also able to select management software that can take advantage of capabilities built into this hardware, further enhancing the management opportunity.

- Specify hardware that is WfM-enabled. WfM technologies will help position your business from the beginning with systems that are remotely manageable.
- Prioritize deployment of desktop management functions by their importance to the organization's business objectives. You'll want to weigh the benefits of the practices that can be WfM-enhanced with the assumption of managing 100% WfM-enabled systems.
- Make sure you adopt setup automation from the beginning. You'll streamline the initial setup of new systems and lay a foundation for future roll-outs. Depending on the application vendor, you'll also enjoy access to recovery tools for corrupted or replaced systems. (See also the *Technology@Work* article, "What You Can Gain by Automating Your New System Setup," which can be found under the Wired for Management article in the Intel® Initiatives/Products section.)

For more information on implementing WfM, see the sidebar, "Roll-Out Strategies for WfM-Enhanced Management."

Wired for Management: A Necessary Investment

The proliferation of PCs in the enterprise, combined with growing reliance on PCs for employee productivity, demands that companies effectively manage these critical business tools. The management capabilities enhanced by WfM technologies enable IT departments to do a lot more than lower total cost of ownership for PCs. They help make the business more competitive.

WfM-enabled systems and tools allow IT departments to quickly deploy new systems and software. Reduced downtime further enhances productivity, and allows the organization to employ powerful, automated systems to link with business partners, streamline practices, and provide employees broad access to powerful tools and information. For Helix Health, WfM-enhanced desktop management has become a business-critical practice.

"All the time that we've invested in our management solutions has been well worthwhile," says Brown. "Not only from the IS perspective in that we're freeing up customer support to do better things. It's from the customer's perspective, in that they're now getting their PCs faster, their applications faster, and they're able to hit the ground running."

Desktop management solutions are clearly worth the effort required to implement them. But it takes planning, testing and active management to realize the benefits of WfM technologies. You must determine the state of your



Deploying Wired for Management Solutions

computing and management infrastructure, and then align your management practices with the priorities of the business. By taking the time to explore, plan and pursue opportunities for using WfM technologies to enhance your systems management, your business will maximize the benefits of a better managed computing environment.

Management Tips for Environments with New and Legacy Systems

Clearly, a mixed environment poses some challenges when implementing desktop management. But just because your older PCs lack WfM capability doesn't mean they can't be managed.

Generally, you have two options for managing legacy systems—either or both of these may be followed:

- Use inventory and other agents from application vendors. These can be remotely downloaded.
- Upgrade the NIC and boot ROM in the system. Depending on the age and configuration of your legacy systems, an upgrade to partial WfM manageability may be an attractive option. Adding WfM-enabled NIC or boot ROM to older PCs can bring PXE to legacy systems. The downside: NIC or boot ROM upgrades will generally not provide remote wake-up or DMI support.

A more attractive option is available for installed WfM-upgradeable systems. Corporate desktop PCs purchased since early 1998 from major vendors are typically WfM-upgradeable or fully WfM-enabled. WfM-upgradeable systems can be lifted to full WfM-enabled capability by adding an OEM-tested NIC type and boot ROM and restoring DMI software to the local hard drive. Check the Intel Web site for a list of WfM-enabled systems, which can be found at <http://www.intel.com/tech.htm>. You can also inquire with your OEM to determine if a model was originally tested for WfM capabilities.

Management Policy Alternatives

Depending on which desktop management practices are being implemented, a two-tiered approach may be a useful option. New systems can be aggressively managed using one or more of the WfM capabilities, while older PCs may be managed to a less extensive level.

In this scenario, you may provide off-hours distribution of software for WfM-enabled systems, while legacy systems (which lack remote boot capability) get distributions at initial startup. Of course, this approach forces users of legacy systems to wait for distributions to complete during the morning boot process. Inventory tracking may also vary, with a richer set of data captured for WfM-enabled systems based on DMI 2.0 and core inventory information for legacy systems gathered via inventory agents from the management application vendor.

Work-arounds can help create management parity. For example, IT departments can create user policies that leave legacy systems on at night, allowing a common off-hours software distribution solution across both legacy and WfM-enabled systems.

If a tiered approach invites too much complexity, IT managers can elect to introduce management on new systems only. Such an approach makes a lot of sense if the organization intends to quickly retire older, legacy systems.



Roll-Out Strategies for WfM-Enhanced Management Functions

When you're planning a roll out of WfM-enhanced desktop management functions, consider that different strategies may apply to different functions. For example, automating system setup may warrant a different approach than establishing wake-up for software distribution. Let's take a look at some general deployment approaches for the desktop management functions that can be WfM-enhanced. Your application vendor or system integrator will have further insight on approaches for your enterprise and particular environment.

Automating System Setup

Automated system setup makes use of the Pre-boot eXecution Environment (PXE) found on WfM-enabled desktop systems. This capability allows PCs to boot OS code from a central server, and supports the IT policy of establishing standard configurations for system loads. While enormously useful, PXE will usually be enabled on the local area network (LAN) initially. This network needs to be fast enough to handle the megabytes of code that must be streamed when first configuring new systems.

To implement automated system setup at remote sites, your best bet is to add local boot servers (provided the site is large enough). For smaller remote sites, consider one of the following options:

- Outsource system setup by configuring PCs at the vendor site, equipping the vendor with an IT-controlled, PXE-based boot server to set up the new systems before delivery.
- Configure systems locally with a boot server, then ship the configured PCs to remote sites.
- If there is sufficient bandwidth on your WAN, consider downloading the new system images during off-hours.

Software Distribution and Remote Wake-Up

Plan to roll out this capability into groups that have a similar set of applications to be updated. The bandwidth requirements for software updates are typically less than that required to distribute OS and applications for initial system setup, so site location is less important. Remote wake-up of systems in the group lets IT managers send software updates to PCs both on-site and off-site, during off-hours to minimize the impact on network performance, as well as minimize user interruptions.

Asset Management or System Inventory

It's a good idea to deploy asset management into groups with a common planning or support structure. This approach allows IT managers to manage systems in each identified group from a common asset database. Because DMI system scans produce only moderate data traffic, system inventory and asset management services enhanced by DMI 2.0 can be deployed across the WAN.

For more information about Wired for Management, please visit the *Technology@Work* site for IT professionals at: www.intel.com/tech

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